CLAIMS

1. A projection system, comprising one or a number of projectors and a viewing screen, on said screen light diffusers for diffusing of projection rays being formed,

characterised in that the light diffusers are adapted to capture the projection rays directed from an end-face of the screen across its surface, and subsequently deflect said rays into a sector of observation of an image formed on the screen; and further comprises an optical system that transforms a projected image and registers cross-sections of the projection rays with entrance pupils of the light diffusers formed on the screen so that to provide a depth of sharpness of the projected image over the entire screen surface.

2. The projection system as claimed in claim 1, characterised in that the viewing screen is adapted to perform a projection from a screen end-face onto the frontal and/or reverse, from the viewer side, surface of said screen, for which purpose the light diffusers are implemented in the form of protruding from, or recessed in the screen surface - mirrors, lenses, prisms for capturing, deflecting and diffusing the rays projected from a screen end-face.

3. The projection system as claimed in claim 1, characterised in that the viewing screen is provided with a light guide in the form of a flat-parallel plate, or a laminate or multi-strip light guide that has a core having a constant refraction index, and end-face entrance windows for inputting, into the light guide, the parallel projection rays; on the light-guide surface, locally over the screen surface, disposed are light diffusers to output said rays out of the light guide in pre-determined coordinates of formation of a screen image and to diffuse said rays into a

sector of observation of said image, for which purpose a projector or projectors are provided with an optical system to form narrow parallel projection rays and to direct said rays through the light-guide end faces into predetermined coordinates of incidence of the rays on the light-guide reflecting planes so that to propagate the rays within the light guide by multiple internal reflection from its surfaces and to output the rays from the light guide by the light diffusers on the screen.

4. The projection system as claimed in claim 3, characterised in that the screen light guide core narrows, wedge-wise, from the light guide's entrance end-face in the direction of propagation of rays in the light guide, the core having a constant refraction index and being coated with a cladding or an optical entrance window of a light diffuser having a constant or stepped refraction index whose value is lower than that of the core; for any version of embodiment of the light-guide screen, the projector being provided with an optical system for formation of projection of rays of the projected image's various elements, which rays are characterised by different angles of entrance of these rays into the light-guide end-face for carrying out the selective outputting of these rays out of the light guide by the screen light diffusers within the appropriate coordinates of formation of a screen image and for subsequent diffusing of these rays by light diffusers into a sector of observation of the image.

5. The projection system as claimed in any one of claims 1-4, characterised in that the entrance and exit windows of the screen light diffusers have a minimal area that is multiple times smaller than the screen area around said windows, and the screen area around the exit windows being coated with an anti-flare opaque black layer, or on the screen between

the light diffusers positioned is an opaque black mesh, or the screen area around the light diffusers being optically transparent or coated with a photochrome film to adjust the screen transparency using the ultraviolet background illumination.

6. The projection system as claimed in any one of claims 1-5, characterised in that the projector is equipped with a projection telephoto lens and anamorphotic cylindrical lens for a minimal magnification of the projection size, for example a magnification in height, and simultaneous magnification of the projection to the screen width, the projector being positioned at a predetermined distance from the screen, and on the end-face of the screen width positioned is a mirror retrodirective reflector to deflect the projection into the screen end-face, or the projector being disposed near the screen end-faces, and on the opposite end-faces of the screen being positioned the mirror reflectors for multiple reflection of the projection, so that to narrow the cross-section of the projection rays within the area of the light diffusers' entrance windows.

7. The projection system as claimed in any one of claims 1-6, characterised in that a transparency projector and the screen are provided with an optical system for transforming the projection images and for narrowing the cross-section of the projection rays without the use of projection lenses and transforming anamorphotic lenses, for which purpose an illuminator of transparent projected images, in the transparency projector, is provided with an optical arrangement to form background illumination of slides by thin rays that diverge fan-wise, cross-section of which rays being broadened within sizes of the area of entrance windows of the light diffusers.

8. The projection system as claimed in any one of claims 1-7, characterised in comprising one or several stereo projectors and a stereo screen having light diffusers and a lenticular raster to carry out the spatial selection of the left and right images of a stereo couple into the zones of vision of the left and right images of a stereo couple by, respectively, the viewer's left and right eyes; and for the purpose of an easy, without the use of spectacles, viewing of stereo images at any aspect or in case when viewers move in a lateral direction; the system being provided with a semi-automatic manually-controled corrector or an automatic corrector coupled to a sensor for tracking the viewers' eyes coordinates, said semi-automatic or automatic correctors comprising a drive for carrying out various versions of correction of the stereoscopy system, for example by way rotating the stereo screen about its vertical axis, or by displacing the lenticular raster, or displacing the stereo projectors along the screen.